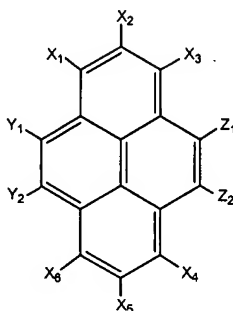


IN THE CLAIMS:

Please amend the claims as shown below.

1. (Cancelled).
2. (Currently Amended) A pyrene based compound according to the following formula:



wherein Z<sub>1</sub> represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and Z<sub>2</sub> represents a hydrogen or deuterium atom;

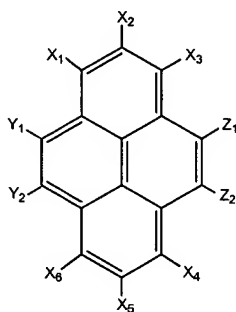
wherein one of Y<sub>1</sub> and Y<sub>2</sub> represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, a substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and the other of Y<sub>1</sub> and Y<sub>2</sub> represents a hydrogen or deuterium atom;

wherein X<sub>1</sub> through X<sub>6</sub> independently represent hydrogen atoms, deuterium atoms, alkyl groups or aryl groups, and at least one of X<sub>1</sub> through X<sub>6</sub> represents a tert-butyl group;

wherein at least one of  $X_1$  through  $X_6$ ,  $Y_1$ ,  $Y_2$ ,  $Z_1$ , and  $Z_2$  represents a deuterium atom; and

The compound of Claim 1, wherein  $Z_1$  and one of  $Y_1$  and  $Y_2$   
independently represent a hole injection chromophore, an electron injection chromophore,  
or both.

3. (Currently Amended) A pyrene based compound according to the following formula:



wherein  $Z_1$  represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and  $Z_2$  represents a hydrogen or deuterium atom;

wherein one of  $Y_1$  and  $Y_2$  represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, a substituted or unsubstituted aryl group,

substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and the other of Y<sub>1</sub> and Y<sub>2</sub> represents a hydrogen or deuterium atom;

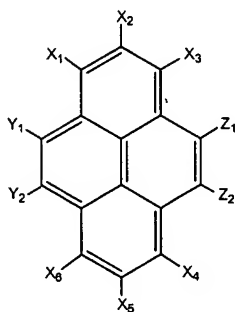
wherein X<sub>1</sub> through X<sub>6</sub> independently represent hydrogen atoms, deuterium atoms, alkyl groups or aryl groups, and at least one of X<sub>1</sub> through X<sub>6</sub> represents a tert-butyl group;

wherein at least one of X<sub>1</sub> through X<sub>6</sub>, Y<sub>1</sub>, Y<sub>2</sub>, Z<sub>1</sub>, and Z<sub>2</sub> represents a deuterium atom; and

The compound of Claim 1, wherein Z<sub>1</sub>[[,]] and one of Y<sub>1</sub> and Y<sub>2</sub>  
independently represent a cross-linking group.

4. (Currently Amended) The compound of Claim 3, wherein the cross-linking group comprises a di-vinyl group.

5. (Currently Amended) A pyrene based compound according to the following formula:



wherein Z<sub>1</sub> represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, substituted or unsubstituted aryl group, substituted or

unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and Z<sub>2</sub> represents a hydrogen or deuterium atom;

wherein one of Y<sub>1</sub> and Y<sub>2</sub> represents a substituted aryl group, and the other of Y<sub>1</sub> and Y<sub>2</sub> represents a hydrogen or deuterium atom;

wherein X<sub>1</sub> through X<sub>6</sub> independently represent hydrogen atoms, deuterium atoms, alkyl groups or aryl groups, and at least one of X<sub>1</sub> through X<sub>6</sub> represents a tert-butyl group;

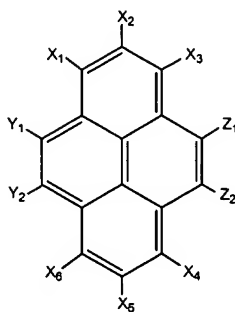
wherein at least one of X<sub>1</sub> through X<sub>6</sub>, Y<sub>1</sub>, Y<sub>2</sub>, Z<sub>1</sub>, and Z<sub>2</sub> represents a deuterium atom; and

The compound of Claim 1, wherein Z<sub>1</sub>[[,]] and one of Y<sub>1</sub> and Y<sub>2</sub> independently represent a benzene ring substituted with one or two pyrenyl groups.

6. (Cancelled).

7. (Cancelled).

8. (Currently Amended) A pyrene based compound according to the following formula:

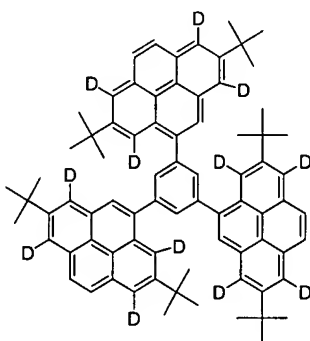


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

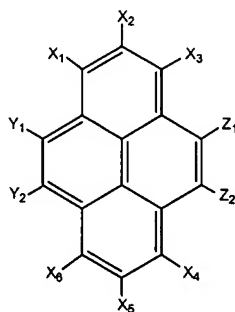
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



9. (Currently Amended) A pyrene based compound according to the following formula:

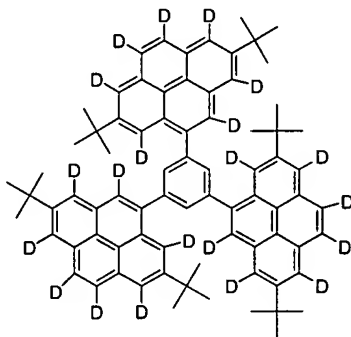


wherein  $Z_1$  and  $Z_2$  independently represent deuterium atoms;

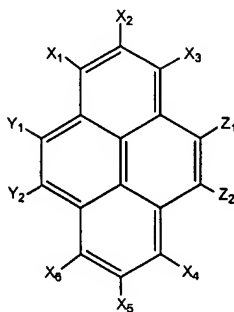
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a deuterium atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



10. (Currently Amended) ) A pyrene based compound according to the following formula:

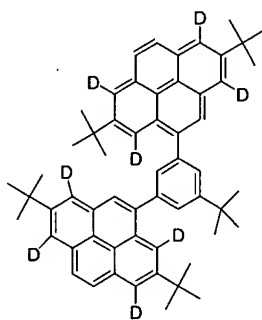


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

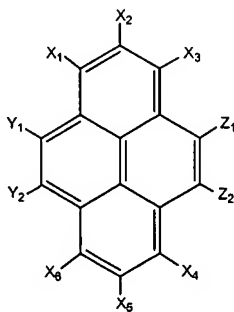
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



11. (Currently Amended) ) A pyrene based compound according to the following formula:

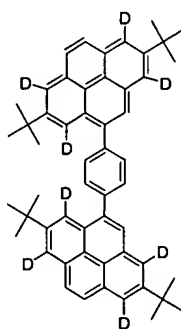


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

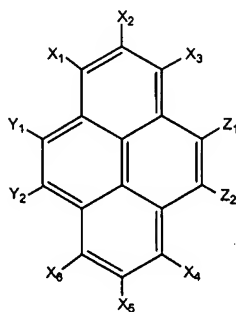
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



12. (Currently Amended) ) A pyrene based compound according to the following formula:

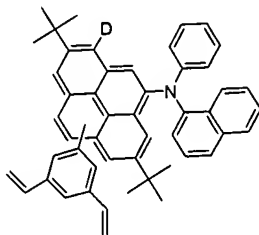


wherein  $Z_1$  represents a substituted aryl amine group, and  $Z_2$  represents a hydrogen atom;

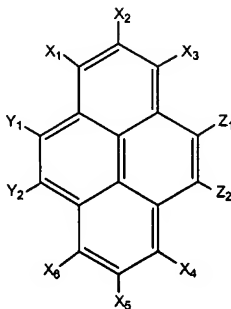
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$  and  $X_6$  independently represent hydrogen atoms,  $X_2$  and  $X_5$  independently represent tert-butyl groups and  $X_4$  represents a deuterium atom; and

~~The compound of Claim 1,~~ wherein the compound has the following structure.



13. (Currently Amended) ) A pyrene based compound according to the following formula:

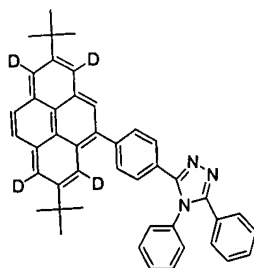


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

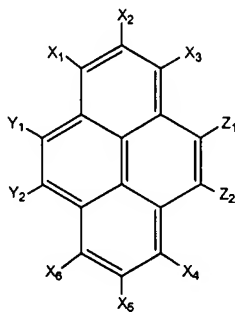
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group and substituted heteroaryl group combination, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



14. (Currently Amended) ) A pyrene based compound according to the following formula:

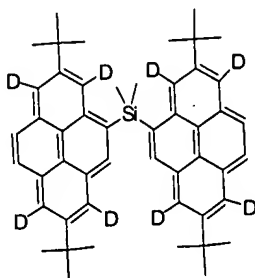


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

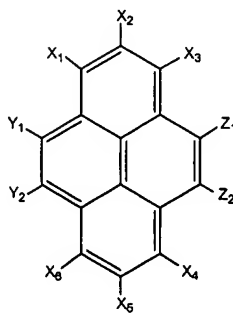
wherein one of  $Y_1$  and  $Y_2$  represents a silicon atom and substituted aryl group combination, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

The compound of Claim 1, wherein the compound has the following structure:



15. (Currently Amended) ) A pyrene based compound according to the following formula:

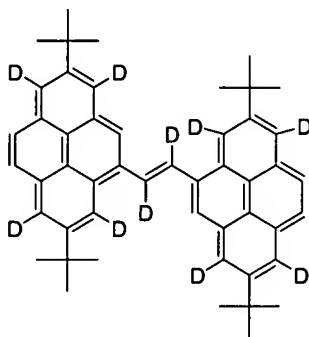


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

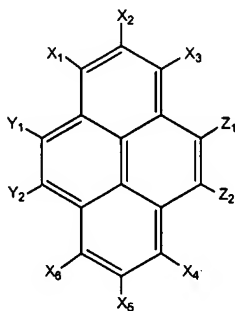
wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1, X_3, X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following structure:



16. (Currently Amended) ) A pyrene based compound according to the following formula:



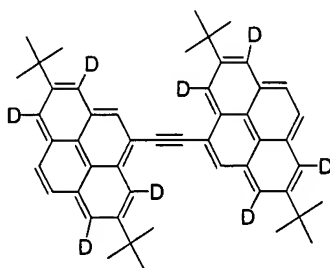
wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

wherein one of  $Y_1$  and  $Y_2$  represents a substituted aryl group, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

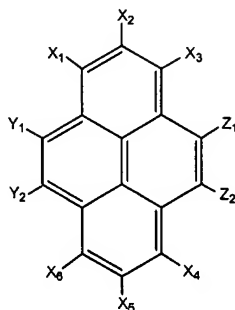
wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

~~The compound of Claim 1,~~ wherein the compound has the following

structure:



17. (Currently Amended) ) A pyrene based compound according to the following formula:

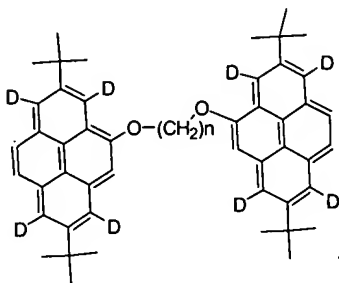


wherein  $Z_1$  and  $Z_2$  independently represent hydrogen atoms;

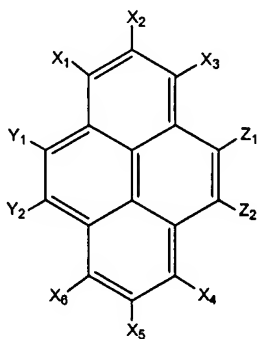
wherein one of  $Y_1$  and  $Y_2$  represents an oxygen atom and substituted aryl group combination, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen atom;

wherein  $X_1$ ,  $X_3$ ,  $X_4$  and  $X_6$  independently represent deuterium atoms, and  $X_2$  and  $X_5$  independently represent tert-butyl groups; and

The compound of Claim 1, wherein the compound has the following structure:



18. (Currently Amended) An organic light emitting device comprising an anode, a cathode and at least one organic layer sandwiched between the anode and the cathode, wherein the organic layer comprises a pyrene based compound of the following general formula:



wherein  $Z_1$  represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and  $Z_2$  represents a hydrogen or deuterium atom;

wherein one of  $Y_1$  and  $Y_2$  represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, a substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and the other of  $Y_1$  and  $Y_2$  represents a hydrogen or deuterium atom;

wherein  $X_1$  through  $X_6$  independently represent hydrogen atoms, deuterium atoms, alkyl groups or aryl groups, and at least one of  $X_1$  through  $X_6$  represents a ~~bulky alkyl group or bulky aryl~~ tert-butyl group; and

wherein at least one of  $X_1$  through  $X_6$ ,  $Y_1$ ,  $Y_2$ ,  $Z_1$ , and  $Z_2$  represents a deuterium atom.

19. (Original) The organic light emitting device of Claim 18, wherein the organic layer is an emissive layer, a hole transport layer, an electron transport layer or combinations thereof.

20. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound serves as a host material of said organic layer.

21. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound serves as a dopant of said organic layer.

22. (Currently Amended) The organic light emitting device of Claim 18, wherein  $Z_1$ [[,]] and one of  $Y_1$  and  $Y_2$  independently represent a hole injection chromophore, an electron injection chromophore, or both.

23. (Currently Amended) The organic light emitting device of Claim 18, wherein  $Z_1[[,]]$  and one of  $Y_1$  and  $Y_2$  independently represent a cross-linking group.

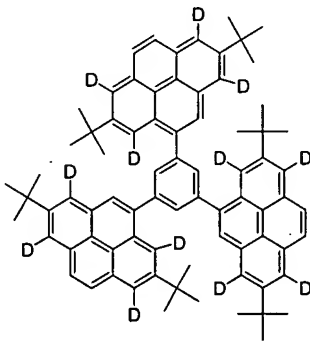
24. (Original) The organic light emitting device of Claim 23, wherein the cross-linking group comprises a di-vinyl group.

25. (Currently Amended) The organic light emitting device of Claim 18, wherein  $Z_1[[,]]$  and one of  $Y_1$  and  $Y_2$  independently represent a benzene ring substituted with one or two pyrenyl groups.

26. (Cancelled).

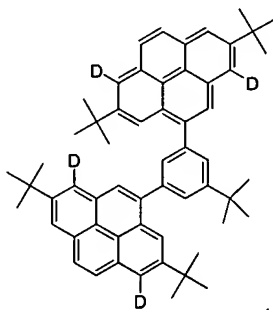
27. (Cancelled).

28. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:

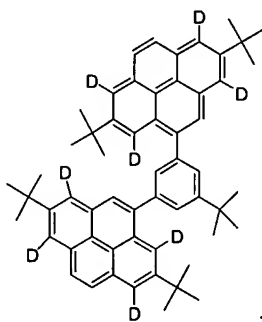


29. (Original) The organic light emitting device of Claim 18, wherein the compound has the following structure:

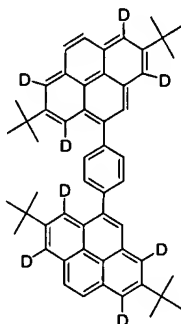
30. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



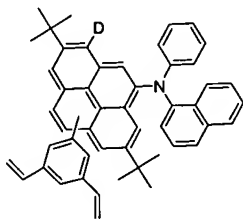
31. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



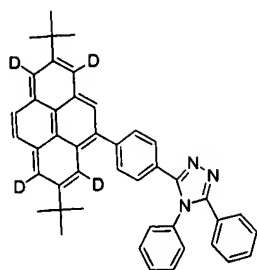
32. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



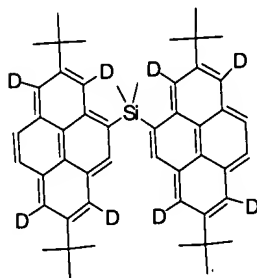
33. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



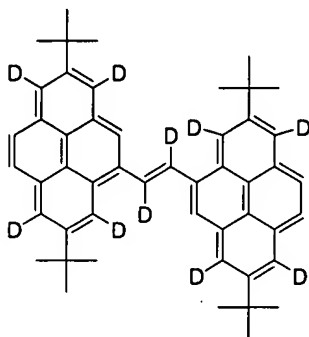
34. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



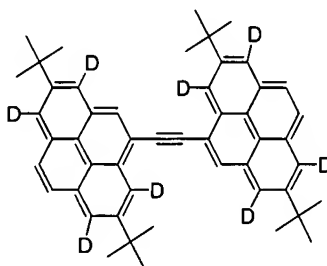
35. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



36. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



37. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:



38. (Original) The organic light emitting device of Claim 18, wherein the pyrene based compound has the following structure:

